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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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10/798,775

03/10/2004

Yasushi Aono

04162/LH

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12/13/2005

FRISHAUF, HOLTZ, GOODMAN & CHICK, PC
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EXAMINER

FINEMAN, LEE A

ART UNIT

PAPER NUMBER

2872

DATE MAILED: 12/13/2005



Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/798,775

Applicant(s)

AONO, YASUSHI

Examiner

Lee Fineman

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) 17-28 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 29 and 30 is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-8 and 13-16 is/are rejected.
- 7) ☒ Claim(s) 4 and 9-12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/10/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Species I, Fig. 1 in the reply filed on 3 October 2005 is acknowledged.

2. Claims 17-28 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-3 and 5-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Kawano et al., US 2002/0097489 A1.

Regarding claim 1, Kawano et al. disclose in fig. 7 an illumination switching apparatus (700) comprising: an objective (314) having a numerical aperture which enables total reflection illumination to be performed on a target (pages 3-4, sections [0061]-[0063]); a light source section (302 and 702) which outputs illumination light; an illumination system (706, 308, 310, 312) which receives the illumination light output from the light source section and guides it to the objective (fig. 7); and an illumination switching section (304, 306, 704 a and b) which selects one of a first optical path (from 702) and a second optical path (from 302), when the first optical

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path is selected, the illumination light output from the light source section being guided through the illumination system to transmit along an optical axis of the objective and illuminate the target in a standard observation mode (pages 3-4, section [0061]), when the second optical path is selected, the illumination light output from the light source section being guided through the illumination system and the objective to illuminate the target in a total reflection observation mode (pages 3-4, section [0061]).

Regarding claim 2, Kawano et al. further disclose wherein the illumination switching section (304, 306, 704 a and b) switches between illumination of the target using standard observation light, performed by guiding the illumination light through the first optical path, and illumination of the target using total reflection observation light, performed by guiding the illumination light through the second optical path (pages 3-4, section [0061]).

Regarding claim 3, Kawano et al. further disclose wherein: the light source section includes at least two light sources (302 and 702); and the illumination switching section includes: a light transmission section (304, 306) which guides the illumination light output from one of the light sources (702) to the first optical path (from 702), and guides the illumination light output from the other of the light sources (302) to the second optical path (from 302); and at least two shutter mechanisms (704 a and b) provided across the first and the second optical path (fig. 7), the at least two shutter mechanisms cooperating to allow the illumination light to transmit through one of the first and the second optical path, and to interrupt the illumination light to transmit through the other of the first and the second optical path (pages 3-4, section [0061]).

Regarding claims 5 and 6, Kawano et al. further disclose wherein the shutter mechanisms (704 a and b) have respective mechanical shutters which are mechanically opened and closed, or

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respective electronic shutters which are electronically opened and closed (page 3, section [0061], lines 8-9) and further comprising a shutter controller (not shown, but clearly present at least when automatically operated) which opens one of the shutter mechanisms and closes the other shutter mechanism when the target is observed using standard fluorescent light, the shutter controller closing the one shutter mechanism and opening the other shutter mechanism when the target is observed using total reflection of fluorescent light (pages 3-4, section [0061]).

Regarding claim 7, Kawano et al. further disclose in fig. 7 an illumination switching apparatus (700) comprising: an objective (314) having a numerical aperture which enables total reflection illumination to be performed on a target (pages 3-4, sections [0061]-[0063]); a first light source (702) which outputs first illumination light; at least one second light source (302) which outputs second illumination light; an illumination system (706, 308, 310, 312) which receives the first or second illumination light and guides it to the objective (fig. 7); a first light transmission section (between 702 and 304) which guides the first illumination light, output from the first light source (702), to a first optical path (fig. 7), the first optical path being formed in the illumination system to guide the first illumination light along an optical axis of the objective (fig. 7) ; a second light transmission section (between 302 and 304) which guides the second illumination light, output from the second light source (302), to a second optical path, the second optical path being formed in the illumination system to realize the total reflection illumination on the target (fig. 7 and pages 3-4, section [0061]); a first illumination switching section (304, 306, 704b) which allows the first illumination light output from the first light source to be guided to the first light transmission section, or interrupts the first illumination light; and a second illumination switching section (304, 306, 704a) which allows the second illumination light

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output from the second light source to be guided to the second light transmission section, or interrupts the second illumination light (pages 3-4, section [0061]).

Regarding claim 8, Kawano et al. further disclose wherein the first illumination switching section has a first shutter mechanism (704b) which allows the first illumination light output from the first light source to be guided to the first light transmission section, or interrupts the first illumination light; and the second illumination switching section has a second shutter mechanism (704a) which allows the second illumination light output from the second light source to be guided to the second light transmission section, or interrupts the second illumination light (pages 3-4, section [0061]).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawano et al. in view of Nagayama, US 5,552,892.

Regarding claim 13, Kawano et al. disclose the claimed invention except for wherein the first light transmission section includes a first optical fiber that transmits the first illumination light. Nagayama teaches an illumination optical system (fig. 1) that includes an optical fiber to transmits the illumination light. It would have been obvious to one of ordinary skill in the art at the time the invention was made to add the optical fibers of Nagayama to the system of Kawano

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et al. to provide a more compact system with a detached light source that is easily moved/stored away from the system.

Regarding claims 14 and 15, Kawano et al. disclose the claimed invention except for wherein the second light transmission section also includes an optical element, which is a small total reflection mirror, which deflects the second illumination light output from the second light emission section, thereby guiding the second illumination light to the second optical path of the illumination system. Nagayama further teaches in fig. 30 an optical element (33 or 13A or 13B), which is a small total reflection mirror, used in conjunction with the optical fibers to guide the illumination light into the system. It would have been obvious to one of ordinary skill in the art at the time the invention was made to add the optical element with the optical fibers of Nagayama to the system of Kawano et al. to provide even more flexibility with guiding the light into the system.

7. Claims 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawano et al. in view of Nagayama as applied to claim 14 above and further in view of Tearney et al., US 6,501,551 B1.

Kawano et al. in view of Nagayama as applied to claim 14 above discloses the claimed invention except for wherein the optical element has a total reflection microprism. Tearney et al. teaches an imaging system in fig. 7C that includes a beam directing optical element and further teaches the equivalence in the art of a mirror and microprism (column 9, lines 21-24). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use

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any of the above optical elements in the system of Kawano et al. in view of Nagayama to provide accurate beam directing capabilities.

Allowable Subject Matter

8. Claims 29 and 30 are allowed.

9. Claims 4 and 9-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter:

Claims 4, 9-12, 29 and 30 are allowable or have allowable subject matter over the prior art for at least the reason that the prior art fails to teach and/or suggest “the light sources have respective laser oscillators which output respective laser beams” as set forth in the claimed combination.

Kawano et al. disclose an illumination switching apparatus (700) comprising: an objective (314); a first light source (702); at least one second light source (302); an illumination system (706, 308, 310, 312); a first light transmission section (between 702 and 304); a second light transmission section (between 302 and 304); a first illumination switching section (304, 306, 704b) which allows the first illumination light output from the first light source to be guided to the first light transmission section, or interrupts the first illumination light; and a second illumination switching section (304, 306, 704a) which allows the second illumination light

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output from the second light source to be guided to the second light transmission section, or interrupts the second illumination light (pages 3-4, section [0061]) but does not have the light sources have respective laser oscillators which output respective laser beams. In fact, the light sources of Kawano et al. are conventional white light sources and Kawano et al. teaches away from using lasers in the system (page 1, sections [0009]-[0012]).

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Aono et al., US 2003/0086163 A1; Abe et al., US 2004/0001253 A1; Kawano, US 2003/005830 A1; and Natori, US 6,924,490 B2 all disclose illumination switching systems for switching between a standard observation mode and a total reflection observation mode. Osipchuk et al., US 6,628,385 B1 disclose an illumination device that simultaneously directs lasers to a sample.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lee Fineman whose telephone number is (571) 272-2313. The examiner can normally be reached on Monday - Friday 7:30 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on (571) 272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



LAF

December 9, 2005


KARIKA ROBINSON
PRIMARY EXAMINER

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| Substitute for Form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT | | | | Application Number | | |
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| | | | | First Named Inventor | | AONO |
| | | | | Group Art Unit | | |
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| Sheet | 1 | of | 1 | Attorney Docket Number | | 04162/LH |

U.S. PATENT DOCUMENTS

| Exam. Inits ¹ | Cite No ¹ | Document Number | Kind Code ² | Name of Patentee or Applicant | Publication Date MM-DD-YYYY | Relevant Portion |
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FOREIGN PATENT DOCUMENTS

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|--|-------------------------|-------------------|------------------------------|---------------------------|----------------------------------|--------------------------------|---------------------|----------------|
|  | | JP | 9-159922 | A | | 06-20-1997 | | |
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| Examiner Signature |  | Date Considered | 12/6/05 |
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¹ EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

² Unique citation designation number. ³ See kinds of U.S. Patent Documents. ⁴ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁵ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁶ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁷ Place a check here if English translation is attached.

DATE MAILED: March 10, 2004

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|-----------------------------------|---------------------------------------|--|---|-------------|
| Notice of References Cited | Application/Control No. 10/798,775 | | Applicant(s)/Patent Under Reexamination AONO, YASUSHI | |
| | Examiner Lee Fineman | | Art Unit 2872 | Page 1 of 1 |

U.S. PATENT DOCUMENTS

| * | | Document Number Country Code-Number-Kind Code | Date MM-YYYY | Name | Classification |
|---|---|--|-----------------|-------------------|----------------|
| * | A | US-2002/0097489 A1 | 07-2002 | Kawano et al. | 359/388 |
| * | B | US-5,552,892 | 09-1996 | Nagayama, Tadashi | 356/401 |
| * | C | US-6,501,551 B1 | 12-2002 | Tearney et al. | 356/477 |
| * | D | US-2003/0086163 A1 | 05-2003 | Aono et al. | 359/388 |
| * | E | US-2004/0001253 A1 | 01-2004 | Abe et al. | 359/388 |
| * | F | US-2003/0058530 A1 | 03-2003 | Kawano, Yoshihiro | 359/385 |
| * | G | US-6,924,490 B2 | 08-2005 | Natori, Yasuaki | 250/458.1 |
| * | H | US-6,628,385 B1 | 09-2003 | Osipchuk et al. | 356/318 |
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| | K | US- | | | |
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NON-PATENT DOCUMENTS

| * | | Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages) |
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*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
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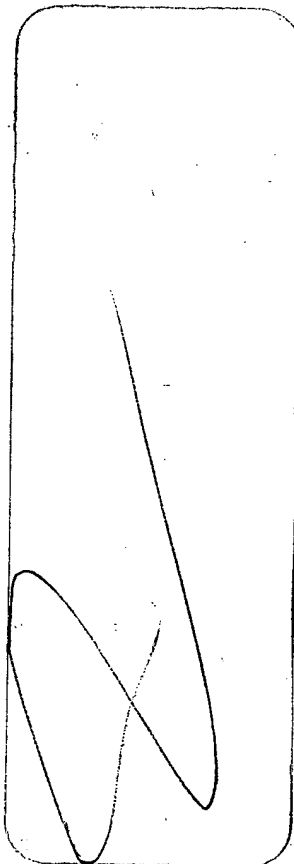
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